



Missions for America
Semper vigilans!
Semper volans!

Weather stripping will be installed as needed on doors.

A security light will be installed on the exterior of the north end of the Cadet trailer.

The Coastwatcher

Publication of the Thames River Composite Squadron
Connecticut Wing
Civil Air Patrol

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<http://ct075.org>

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Vol. VIII, No. 36 07 October, 2014

SCHEDULE OF COMING EVENT

11 OCT-Squadron Maintenance Day
14 OCT-TRCS Meeting
17-19 OCT-CTWG/NER Conference
16-18 OCT-NER AEO Course at Conference
21 OCT-TRCS Meeting
18-25 OCT-NER Staff College-New Jersey
28 OCT-TRCS Meeting

01 NOV-CTWG SAREX
08-09 NOV-SLS Course-Meriden

SQUADRON MAINTENANCE DAY

A Squadron maintenance day is scheduled for Saturday, 11 October and will start at 0900.

The steps will be painted with anti-skid paint. Volunteers are asked to bring a paint scraper and brushes.

ANNUAL FUNDRAISER



The Squadron's annual raiser has started. Squadron members who have not received their sales packets should contact LtCol Rocketto.

Squadron expenses are about \$6,000 each year. We raise \$1400 from senior member dues, \$600 from contributions and grants, and \$4,000 from our fruit sale. This money pays for our electricity, telephone, maintenance, equipment and supplies, and van fuel.

Last year only half of our Squadron members took part and 50% of the fruit was sold by 15% of our members. This is lamentable. There is a possibility that Squadron dues for Officers will be raised and dues for Cadets will be implemented if we cannot raise sufficient funds.

The fruit we sell is a first class product. We are also maintaining last year's price's in spite of increasing cost. Volume sales are the key to success and maximum participation is the key to volume sales.

It is important that each squadron member do their part in selling their share to pay for our operations.

Sales materials have been passed out at the meeting and, for those who were absent, can be picked up next week.

The sale starts immediately. The last day to turn in invoices and money is tentatively at the meeting on November 4th. This is not negotiable. We must notify the fruit company the next day in order to get an on-time delivery.

Note the changed date for the last day of the sale. This allows us one month to get our orders.

Some members prefer not to sell fruit but prefer to make a monetary contribution. This is acceptable.

Finally, I cannot emphasize the importance of this project. If we could average 10 cases/member, we can clear around \$5,000 which will leave us a margin for additional enhancements to our programs.

Please do your utmost to contribute. We need an all-hands turnout to be successful.



CADET MEETING NOTES

07 October, 2014

by

C/MSgt Virginia Poe

Cadets engaged in the physical training program at Poquonnock Plains Park in Groton. Several personal records were set and cadet performances improved noticeably.

Cadets returned to the Squadron and studied the chain of command.

LtCol Rocketto briefed the Cadets on the citrus fruit fund raiser and distributed sales materials.

SENIOR MEETING NOTES

07 October, 2014

Commander's Call

Deputy Squadron Commander Maj Scott Farley conducted the meeting.

No CTWG meeting was held so there is no report.

Volunteers for maintenance work were enrolled.

The recent Subordinate Unit Inspection has been completed and we await results.

Maj Farley requested that Officers submit their training requests for the November CTWG SAREX. Hopefully, instructors and evaluators can be matched to students and candidates so that specific goals might be achieved.

The portable toilet has been rented and is located on the west end of the Senior Trailer.

The Safety Briefing discussed bird strikes. Maj Farley related the most likely places and times when one might suffer a strike. Avoidance strategies were discussed. LtCols Kinch and Rocketto related their experiences.

The balance of the meeting was a live computer assisted briefing on WIMRS 2.0.

AEROSPACE CURRENT EVENTS

Drones as Fire Spotters

NASA's Langley Research Center and the Fish and Wildlife Service will test drones for the ability to spot brush and forest fires. The tests will be

carried out in the Great Dismal Swamp National Wildlife Refuge along the Virginia-North Carolina border.



NASA researcher Mike Logan displays one of the drones. (Credit: NASA Langley/David C. Bowman)

The drones are cheaper to operate than manned aircraft and they were acquired cost-free from the U.S. Army. NASA has equipped them with visual and infrared cameras. The drones have a six foot wingspan and weigh 15 pounds.

CTWG Flight Activity and Future Plans

CTWG Commander Kenneth Chapman has issued a report of the current status of flight activity in Connecticut.

During the past fiscal year, the Wing was second in Northeast Region in flying hours. Cadet orientation flights increased by 15%.

CTWG has six aircraft assigned: four Cessna 182s, three with the “glass” cockpit” and two Cessna 172s.

Eight cadets are currently enrolled in programs leading to solo or a private pilot rating. Maj Robert Malagutti from Silver City oversees this program.

The Wing will hold a pilot meeting at the upcoming conference and the FAA will conduct a seminar entitled “Putting Professionalism Back in Aviation.” The seminar offers one basic credit in

the Wings Program. In addition, quarterly meetings staged at different airports around the State are planned for the first quarter of the next fiscal year.

AEROSPACE HISTORY

The X Planes Part II

The first installment of this article commented on all of the manned X Planes from the Bell X-1 to the Ryan X-13.

Bell X-14

Most of the early planes in the series were generally dedicated to high speed flight research. The Bell X-14 explored the realm of Vertical Take-off and Landing (VTOL). The one airframe built was modified as experience was gained in vertical flight, hovering, and the transition to cruise. Adjustable vanes redirected the jet exhaust from horizontal to vertical to achieve VTOL.

The aircraft was unusual in a number of ways. The Bell factory designation was Model 68 and when flying under the aegis of the USAF, X-14.

NASA acquired the aircraft and used it for exploring lunar landing techniques and called it the X-14A. NASA then swapped its two Armstrong-Siddely Viper jet engines for two General Electric J-85s and the new moniker was X-14B.



The X-14 displays the intakes for the two Viper engines. (PD)

Like some other designs such as the Fisher P-75 Eagle, stock parts from other aircraft were used to save time and money in construction. The X-14

used parts from a Beech Bonanza and a Beech Mentor.

The aircraft is now in the Ropkey Armor Museum in Crawfordsville, Indiana.

North American X-15

Arguably, the X-15 was the greatest of all of the X Planes. In 1954, the National Advisory Committee for Aeronautics, the forerunner of NASA, requested tenders from the aircraft industry for a hypersonic research aircraft. North American won the competition and less than five years later, CAP icon Scott Crossfield piloted the X-15 on its first glide tests. Ten years later, after 199 flights flown by a dozen pilots, the X-15 program ended. Ironically, the scheduled 200th flight was cancelled to due snow at Edwards AFB.



Above: X-15-1 at NA&SM on the Mall.

Above: X-15-2 at the Air Force Museum.



Neil Armstrong flew the X-15 on seven missions and Crossfield, the North American test pilot, flew 14 times. Joe Engle went on to test fly the

Space Shuttle.

The sleek aerodynamic features of the bullet shaped Bell X-1 were abandoned for a blunt nose and thick wings, better to resist frictional heating at Mach 5, the planned speed regime for X-15 flight. The absolute speed record was set by Bill Knight, Mach 6.7. Forty-five years later, this record remains the highest speed achieved by a manned aircraft.



The X-15-2 which set the record was coated with a ablative coating heat shield which burns away to dissipate the heat. (Credit: NASA)

In its last manifestation, the X-15 was powered by a throttle-able Thiokol XLR-99 liquid fueled rocket which generated 60 to 70 thousands pound of thrust for about four minutes. Fuel was anhydrous ammonia and liquid oxygen.

Five pilots also earned USAF or NASA Astronaut Wings by exceeding 50 miles in altitude: Robert White, Robert Rushworth, Joe Engle, William Knight and Michael J. Adams. Three NASA pilots, Jack McKay, Bill Dan, and Joe Walker also met the requirement. One pilot, Walker met the Fédération Aéronautique Internationale requirement of 100 kilometers (62.1 miles) and did it twice.

Three aircraft were built. They were air-launched from an NB-52 mothership and glided to a landing which was accomplished using a nose wheel and two rear skids. One, the X-13-3 was destroyed when it entered a spin at hypersonic speeds. Major Michael Adams was killed.



NB-52A "mother ship." one of two. Note the mission marks and the pylon on which the X-15 was mounted.



X-15 Launch (Credit: NASA)

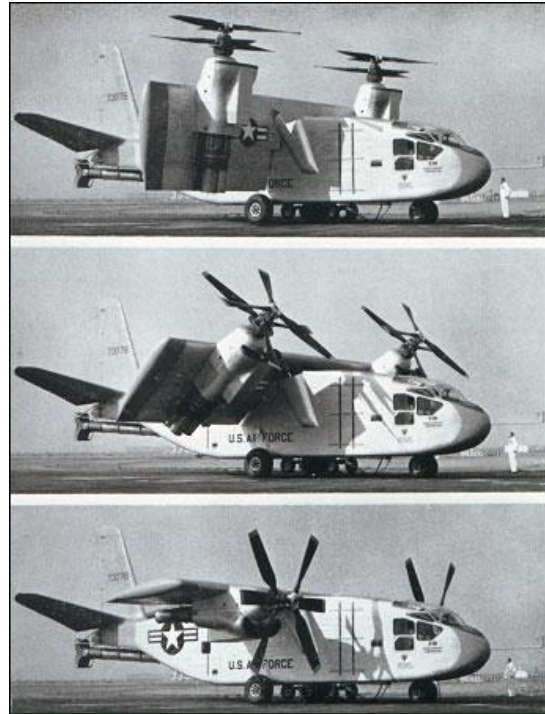
The program yielded valuable data on aerodynamic heating, hypersonic flight controls and stability, life support systems, and the properties of structural materials. The X-15 led the way to manned space flight.

Hiller X-18

The single X-18 manufactured by Hiller was designed to test Vertical and Short Take-off and Landing (VSTOL) methodology and technology. Like the X-14, parts from other aircraft were used to piece the plane together.

The turboprop engines each drove a coaxial propeller and were salvaged from the ill-fated Lockheed XFV-1 and Convair XFY-1 "pogo" planes, tail-sitters designed for vertical take-off

and landing. The fuselage came from an Chase C-122, the forerunner of the Fairchild C-123. The wings, which carried the engines were designed to rotate from the vertical take-off configuration to a normal horizontal cruise position. Landing would be accomplished in a reverse manner. Adjustable coaxial tail rotors assisted control.



A sequence illustrating the rotating wing (Credit: USAF)

The ship was almost lost when propeller pitch was lost in a high altitude conversion from cruise to hover and a spin developed but the pilots managed to recover and land safely.

The near crash contribute to knowledge about dangers of the loss of one engine and the need to cross-shaft the engines in case one of them failed.

After some 20 flights, the X-18 was scrapped.

Curtiss-Wright X-19

The X-19 was the third X-Plane designed to explore the realm of VTOL flight. The design was unusual in the tandem wing arrangement with a pair of propellers which could be rotated through

90 degrees. Rotating the propellers rather than the entire wing eliminated control problems encountered in the X-18 when the wing was vertical at low speed and subject to large drifts the wind acting on the relatively large “sail” area.



X-19 in flight (Credit: Curtiss-Wright)

Two aircraft were built. The first was destroyed in a crash a year after first flight but both pilots ejected safely.. The second ship has been stored by the USAF at Wright-Patterson and may be restored for display.



Second X-19, which never flew, in storage at the Museum of the USAF (Credit: David Pride 2008)

The X-19 contributed to the current crop of convertiplanes such as the Bell-Boeing V-22 currently in service with the USAF and USMC.

Northrop X-21

The X-21 was a modified Douglas EB-66 Destroyer of which two were manufactured. The wing mounted engines were moved to the rear. Small slots were machined into the upper and lower surfaces of the wings. Bleed air from the engines was then ducted to pumps housed in the nacelles which draw air inward and reduced the boundary layer, the static layer of air which lies

close to the wing. This produces a laminar flow over the wings which reduces air friction markedly and improves aircraft performance.

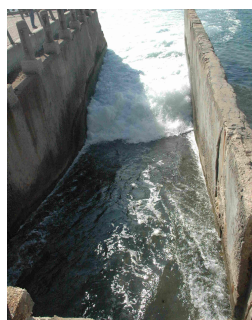


WB-66D at Warner-Robins AFB in Georgia



X-21 Clearly Showing External Modifications (Credit: Northrop Corp.)

The concept worked remarkably well experimentally but in normal practice failed to produce worthwhile results. Particulate matter, insects, and ice crystals would stick to the wings or plug the slots and seriously reduce the laminar flow. The air would become turbulent, robbing energy from the system and degrading aircraft performance



The outflow from a power plant's cooling system illustrates laminar flow transitioning to turbulent flow. The same phenomena can be seen in a stream of smoke rising from a smoldering match.

Useful information on laminar flow was obtained from the X-21 program but as a practical matter, the slotted wing system failed to produce marketable results.